LAST week we printed a letter from M. Julius, of Delft, Holland, asking a question with regard to tables of reciprocals. Mr. T. S. Barrett and Mr. A. Freeman write to us recommending Barlow's tables of squares, cubes, square roots, cube roots, and reciprocals of all integers up to 10,000. The reciprocals are given to seven places of significant figures, besides the leading zeros. The work was edited by the late A. De Morgan, and published for the Useful Knowledge Society by Taylor and Walton, London, 1840.

PROF. BALL, General Director of the Science and Art Museum, Dublin, mentions in his report for 1887, that early in the year he brought before the Council of the Royal Irish Academy the desirability of its handing over to the Museum an old collection of moulds of Irish crosses and miscellaneous sculptures, together with casts, most of which had been prepared for the Exhibition of 1853. To this proposition the Academy cordially assented, and, after much piecing together of broken fragments, it was found that the material provided a very valuable and representative set of casts. It is proposed that casts of many objects of ancient Irish art not included in this collection shall also be obtained. The collection, when completed and properly arranged in the new Museum, ought to be of great service not only to archæologists but to workmen, who would be well rewarded for a careful and elaborate study of the ideas of the mediæval craftsmen of Ireland.

HERR H. FORSELL has been chosen President of the Swedish Royal Academy of Science for the ensuing year, in place of Herr C. G. Malmström.

THE Biological Society of University College will hold its annual *soirée* at the College on Thursday, June 7, beginning at 8 p.m. Prof. W. H. Flower, F.R.S., will deliver a lecture at 9 p.m. on "The Pygmy Races of Men." Tickets may be had on application to the secretaries of the Society.

WE have received the *Annuaire* for the year 1888 of the Paris Society for the Encouragement of National Industry. Among the contents are a list of the members, and an extract from the programme relating to the prizes to be given by the Society from 1888 to 1893.

THE Danish Government has granted a sum of £500 for the purpose of having the oyster-banks in Denmark examined by an expert. His object will be to ascertain the results of their continued preservation, with a view to the resumption of fishing.

SOME months ago a large consignment of salmon ova was despatched from Denmark to Buenos Ayres, *viâ* Hamburg, for the stocking of certain lakes and rivers in the Argentine Republic. The experiment has proved very successful, the ova ariving in excellent condition, and further consignments are to be made.

THE following incident in the trial of the great patent case, Edison and Swan Electric Light Company *v.* Holland and others, now proceeding in the Chancery Division of the High Court of Justice, before Mr. Justice Kay, is taken from the shorthand report in the *Electrician* of May 18. On May 16, Prof. James Dewar, F.R.S., Professor of Chemistry in the University of Cambridge was under examination. A small crucible was produced and handed to the witness, who said: In that crucible I have, with Mr. Gimingham, carbonized filaments in the precincts of the court, using no packing and no luting of any description. The filament was a thread so far as he could remember.

Sir Horace Davey urged that this did not arise out of the cross-examination.

Mr. Justice Kay said it should have been produced in the examination-in-chief. If it were pursued, Sir Horace Davey would be entitled to ask any questions upon it.

Sir Horace Davey, cross-examining:—About what heat was this produced at?—It was a mere experiment. It was a spirit-lamp that was used.

Do you suggest that this coil, or whatever you like to call it, has been heated to a sufficient heat for use as a conductor in an incandescent lamp? —Not at the present time.

Then it is not completely carbonized?—It is carbonized; but it does not conduct well enough. It wants to be heated for a longer time at a higher temperature.

Has it been heated to a degree at which the oxygen would combine with or attack the carbon?—That I cannot say. I think it is probably at a low red heat.

Mr. Justice Kay: I am very much disgusted. I am here trying all I can to understand the case, and this is clearly an attempt to mislead. I am greatly disgusted.

Prof. Dewar: I have no desire to mislead your lordship. I have stated that this was a mere experiment. I did not produce it. It was put to me.

Mr. Justice Kay: You may stand down.

THE additions to the Zoological Society's Gardens during the past week include a Rhesus Monkey (*Macacus rhesus* ♀) from India, presented by Mr. George Somerford; a Barbary Ape (*Macacus inuus* ♀) from North Africa, presented by Miss Waterman; a Brazilian Tree Porcupine (*Sphingurus prehensilis*) from Pernambuco, presented by Mr. Clement J. Bateman; a Barbary Wild Sheep (*Ovis tragelaphus*), from North Africa, presented by Mr. E. H. Forwood; a Greater Black-backed Gull (*Larus marinus*), British, presented by Prof. E. Ray Lankester, F.R.S., F.Z.S.; a Herring Gull (*Larus argentatus*), British, presented by Mr. E. Wright: a Cape Dove (*Œna capensis*), a Tambourine Pigeon (*Tympanistria bicolor*) from South Africa, presented by Mr. R. H. Milford; a White-handed Gibbon (*Hylobates lar*) from the Malay peninsula, a Chimpanzee (*Anthropopithecus troglodytes* ♀), a Marabou Stork (*Leptoptilus crumeniferus*) from West Africa, two Caracals (*Felis caracal juv*) from Africa, three Red-crowned Pigeons (*Erythrænas pulcherrimus*), a Praslin Parrot (*Coracopsis barklyi*), two —— Kestrels (*Tinnunculus gracilis*) from the Seychelles, a Laughing Kingfisher (*Dacelo gigantea*), a Black-backed Piping Crow (*Gymnorhina tibicen*), a Greater Sulphur-crested Cockatoo (*Cacatua galerita*) from Australia, two Glass Snakes (*Pseudopus pallasi*) from Dalmatia, deposited; six Common Pintails (*Dafila acuta*), eight Common Teal (*Querquedula crecca*), eight Garganey Teal (*Querquedula circia*), ten Wigeon (*Mareca penelope*), a Shoveller (*Spatula clypeata*), British, purchased; a Red Kangaroo (*Macropus rufus*), born in the Gardens.

OUR ASTRONOMICAL COLUMN.

COMET 1888 *a* (SAWERTHAL).—At the beginning of last week, apparently on May 20 or 21, the comet suddenly became very much brighter, gaining fully three magnitudes. It has since faded again. Only a few observations have as yet come to hand, but it is to be hoped that everyone who has observed it during the last fortnight, and made any estimate of its brightness, will publish his observations without delay.

THE SHORT PERIOD COMETS AND ASTEROIDS.—Prof. Kirkwood, who has already given reasons for thinking that two short period comets originally belonged to the group of asteroids, has extended his argument in the *Sidereal Messenger* for May to include the class of short period comets as a whole. He points out that, of the twenty comets concerned, seven have disappeared, either by dissolution into fragments, like Biela's comet, or by the transformation of the orbit by the influence of Jupiter, as in the case of Lexell's comet. The instances of the comets of Lexell and Wolf (1884) are representative, Prof. Kirkwood considers, of the mode in which asteroidal may have been changed into cometary orbits. Had the latter, indeed, been discovered before its perturbation, it would probably have been considered simply an asteroid of unusually long period, for its eccentricity and inclination were

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well within asteroidal limits. Of the twenty comets, not only have seven disappeared, but five, or, including Encke's and Biela's, seven, have periods commensurable with that of Jupiter; all the twenty have direct motion; all but one have smaller inclination than Pallas; and, as with the asteroids, there is a tendency of the perihelia to concentrate in the 180° from 290° to 110°.

NEW MINOR PLANET.—A new minor planet was discovered by M. Borrelly on May 12 at Marseilles. This may possibly, but not very probably, prove to be Xanthippe, No. 156. Should it be really a fresh discovery, it will rank as No. 278, whilst the one discovered by Herr Palisa on May 16 (see NATURE, vol. xxxviii. p. 89) will be numbered 279.

ASTRONOMICAL PHENOMENA FOR THE WEEK 1888 *JUNE* 3-9.

(FOR the reckoning of time the civil day, commencing at Greenwich mean midnight, counting the hours on to 24, is here employed.)

At Greenwich on June 3

Sun rises, 3h. 49m.; souths, 11h. 57m. 57·6s.; sets, 20h. 7m.: right asc. on meridian, 4h. 47·4m.; decl. 23° 24′ N. Sidereal Time at Sunset, 12h. 58m.

Moon (New on June 9, 17h.) rises, 1h. 42m.; souths, 7h. 30m.; sets, 13h. 29m.: right asc. on meridian, 0h. 18·6m.; decl. 2° 54′ S.

Planet.	Rises. h. m.	Souths. h. m.	Sets. h. m.	Right asc. and declination on meridian. h. m.	° ′
Mercury..	5 4 ...	13 35 ...	22 6 ...	6 25·2 ...	25 23 N.
Venus ...	3 21 ...	11 14 ...	19 7 ...	4 3·4 ...	20 4 N.
Mars ...	14 19 ...	19 57 ...	1 35*...	12 47·6 ...	5 3 S.
Jupiter ...	18 39 ...	23 0 ...	3 21*...	15 51·7 ...	19 12 S.
Saturn ...	7 38 ...	15 32 ...	23 26 ...	8 22·0 ...	20 5 N.
Uranus...	14 19 ...	19 59 ...	1 39*...	12 49·8 ...	4 37 S.
Neptune..	3 20 ...	11 5 ...	18 50 ...	3 53·9 ...	18 38 N.

* Indicates that the rising is that of the preceding evening and the setting that of the following morning.

June.	h.	
8 ...	20 ...	Venus in conjunction with and 3° 39′ north of the Moon.

Variable Stars.

Star.	R.A. h. m.	Decl. ° ′			h. m.	
U Cephei	0 52·4 ...	81 16 N. ...	June	6,	0 16	*m*
Mira Ceti	2 13·7 ...	3 29 S. ...	,,	9,		*m*
R Leonis	9 41·5 ...	11 57 N. ...	,,	4,		*M*
S Ursæ Majoris ...	12 39·1 ...	61 42 N. ...	,,	9,		*M*
V Virginis	13 22·0 ...	2 36 S. ...	,,	8,		*M*
U Coronæ	15 13·6 ...	32 3 N. ...	,,	7,	22 20	*m*
U Herculis	16 20·9 ...	19 9 N. ...	,,	3,		*m*
U Ophiuchi... ...	17 10·9 ...	1 20 N. ...	,,	7,	23 48	*m*
W Sagittarii ...	17 57·9 ...	29 35 S. ...	,,	8,	22 0	*m*
U Sagittarii... ...	18 25·3 ...	19 12 S. ...	,,	3,	2 0	*m*
			,,	6,	1 0	*M*
R Scuti...	18 41·5 ...	5 50 S. ...	,,	4,		*m*
β Lyræ...	18 46·0 ...	33 14 N. ...	,,	3,	3 0	*m*
R Capricorni ...	20 5·0 ...	14 36 S. ...	,,	4,		*M*
X Cygni	20 39·0 ...	35 11 N. ...	,,	8,	21 0	*m*

M signifies maximum; *m* minimum.

Meteor-Showers.

	R.A. °	Decl. °	
Near Antares	248 ...	20 S.	
,, σ Ophiuchi	260 ...	5 N. ...	Rather slow.

GEOGRAPHICAL NOTES.

IN the Report of the Survey of India for 1886–87, Colonel Strahan gives an account of the survey and exploration of the Nicobar Islands by himself and party. A very careful survey of the whole group was made, and the coast-lines at last accurately laid down. Owing to the dense vegetation, the party were unable to penetrate any distance into the interior, and only a few heights could be measured. The culminating point of the whole group, 2105 feet above sea-level, stands near the south-east corner of Great Nicobar, the area of which is 375 square miles, the total area of the group being 678 square miles. The scenery, especially of Great and Little Nicobar, is of indescribable beauty. There are several rivers in the former island which are navigable by boats for some miles, especially the Galatea, on the south coast. Its course is very tortuous, the banks are fringed with tree-ferns, canes, bamboos, and tropical vegetation of infinite variety, through which occasional glimpses are obtained of high mountains in the interior covered with dense forests to their very summits, and generally cloud-capped. The country through which the stream runs is almost uninhabited; a few huts appear here and there tenanted by an inland tribe of savages called "Shom Pen," of whom very little is known, except that they are in such an utter state of barbarism as to be held in contempt even by the Nicobarese inhabiting the coasts. On most of the islands the forest grows luxuriantly down to the beach. Mangroves, except in the island of Kamorta, are not very plentiful, and in this respect these islands differ widely from the neighbouring Andaman group, where the creeks are fringed with mangroves mile after mile. The sea-beach consists largely of coral. The climate is very equable day and night all the year through, and most pleasant to one's feelings, but unfortunately its character for unhealthiness is only two well established. The rainfall, which averages about 100 inches, is pretty evenly distributed throughout the year. The thermometer stands very steadily between 80° and 85° in the shade, and hardly varies day or night. The inhabitants of these islands, Colonel Strahan states, are allied to the Malays, and are a complete contrast to their tiny, intensely black, woolly-haired neighbours the Andamanese. The Nicobarese are very strong, thickly built men, not much if at all inferior to Europeans in physique, of a reddish-brown colour. They are unconquerably lazy, having no inducement whatever to exertion. They have a wonderful talent for learning languages. Fortunately, Mr. Man, the Settlement Officer at Kamorta, who has done so much for Andaman anthropology, has been carefully studying the Nicobarese, their habits and language, and is now engaged on a book on the subject, which will shortly be published.

MR. C. M. WOODFORD, the successful naturalist explorer of the Solomon Islands, is about to leave England on a third visit to the group. After spending some time in various parts of the islands not previously visited, he will investigate Santa Cruz, Woodlark Island, and other islands lying to the south-east of New Guinea.

ACCORDING to the new Survey Report, triangulation surveys have already been effected over 15,000 square miles in Upper Burma, and the out-turn of reconnaissance surveys amounts to 11,000 square miles on the scale of 4 miles to an inch, in the following States and districts: Northern Shan States and Ruby Mines district, 3000 square miles; Southern Shan States, 3000; Yemethin and Mehtila district, 2000; Yaw country, 1000; Mandalay and Kyaukse districts, 2000.

IN the summary Report of the Geological Survey of Canada for 1887, some of the results are given of the expedition under Dr. G. M. Dawson last summer, of the exploration of British Columbia. Mr. Ogilvie's instrumental survey to the intersection of the Yukon with the 141st meridian will form a sufficiently accurate base-line for future explorations in this region. In addition to this the geographical results include the completion of an instrumental survey of the Sitkine to Telegraph Creek by Mr. McConnell, which is connected with Dease Lake by a carefully placed traverse by Mr. M'Evoy. Thence a detailed running survey was carried by the Dease, Liard, and Pelly Rivers, connecting with Mr. Ogilvie's line at the mouth of the Lewis River, a total distance of 900 miles. Taken in conjunction with Mr. Ogilvie's line, these surveys include an area of over 6000 square miles, the interior of which is still, with the exception of reports received from a few prospectors and from Indians, a *terra incognita*. The same remark may be applied to the whole surrounding region outside the surveyed circuit, but much general information has been obtained respecting the entire district, which will facilitate further explorations. The whole region is more or less mountainous, though intersected by wide areas of flat or valley country. The country, though generally mountainous in character, includes large tracts of flat and slightly broken land, and, according to Dr. Dawson, may eventually support a population as large as that found in corresponding latitudes in Europe.

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